Huntsville 2000 A New View of Geospace **Session Report**

Tuesday Afternoon Session on Cusp Controversies; discussion leader: Dave Sibeck

Reporter: Tim Eastman, Plasmas International, Silver Spring, Maryland

Presentations:

Configuration of high-latitude and high-altitude boundary layers, by T. Eastman and S. Boardsen

Implications of cusp and boundary layer observations for merging, by P. Newell and S. Wing

Time-dependent observations using the IMAGE spacecraft Radio Plasma Imager (RPI), by P. Reiff et al. (presented by J. Goldstein)

Plasma flows observed by Interball at the high-latitude magnetopause, by O. Vaisberg et al.

New empirical magnetopause model that includes cusp indentation, by S. Boardsen et al.

Energetic particles and the magnetospheric cusps, by T. Fritz

MeV magnetosheath ions energized at the bow shock, by S-W Chang et al

Reporter report:

Brief summary given of presentations listed above.

Key **problems** in boundary layer studies:

1. high-altitude cusp and mantle
   (lack of detailed observations, especially for $r > 8\ R_E$ and tailward of $x = -5\ R_E$)
2. closed LLBL (need for more experimental and theoretical studies; most work has focused on open component of boundary layers)
3. magnetopause (fundamental linkage of microphysics and MHD scale not understood)
4. plasma sheet boundary layer
   (as with magnetopause, contains essential clues about basic links of microphysics and MHD scale)

Key **needs** for boundary layer studies:

1. micro-, meso-, macro- studies; coupling across scales
2. 3-D observations and dynamics
3. better integration of observation/theory&simulation/lab experiments